

REMARKS

By the present invention, Claim 1 has been amended, and Claims 2 and 3 have been newly added. Claims 1-3 remain pending in the present application. Claim 1 is the sole independent claim.

Applicants respectfully submit that the amendments to the claims are fully supported by the original disclosure, and introduce no new matter therewith. Applicants respectfully request reconsideration and allowance in view of the foregoing amendments and the following remarks.

Rejection Based on Japan '721

1. Claim 1 is rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Japan '721 (Japan Patent Application Publication No. JP 9-102721 A). Applicants respectfully traverse this rejection.

Amended independent Claim 1 recites a quartz oscillator including a conductive base, a quartz thin-film, a vibrating reed, and excitation electrodes. The base has a recessed portion provided on one face thereof by processing to have an inverse mesa shape. The base forms an excitation electrode. The quartz thin-film is formed on the other face of the base by epitaxial growth to have a thickness of 10 μm or less. A portion of the quartz thin-film forms a vibrating reed portion. Another excitation electrode is formed on the quartz thin-film. The excitation electrodes are adapted to mechanically support the quartz thin-film and vibrate the vibrating reed portion (see, for example, Example 5, pages 12-14 of the specification).

Japan '721 relates to the production of a sealed quartz oscillator package ("vibrator package case"). The package consists of a vibrating plate 1, an upper case 2, and a lower case 3. All elements of the package are made of quartz. The upper case 2 and the lower case 3 are etched to construct a space to contain the vibrating plate 1. As shown in Figs. 2-6, the vibrating plate 1 has a gap 6 surrounding a vibrating portion 7 that is connected to the outer peripheral portion by a connecting portion 10. The thickness of the vibrating portion 7 is thinner than the thickness of the surrounding quartz matrix from which it is etched. The excitation electrodes 8 and 9 are deposited on the vibrating portion 7, and are fed by the lead electrodes 11 and 12. Fig. 4 shows the vibrating plate after etching. The thickness of the vibrating portion 7 and its electrodes contained within the well circumscribed by boundary 19 is thinner than the thickness of the surrounding quartz matrix from which it is etched. However, Japan '721 states in paragraph 13 that the vibrating plate 1 has a thickness of 100 μm , not 10 μm or less. The vibrating plate assembly of Japan '721 is sandwiched between the upper and lower cases 2 and 3 (see paragraphs 13-20 of Japan '721).

The Office states that "Fig. 6 of JP 9-102721 shows the base as element 3, having a recessed portion (the region bounded by layer 16 and/or 18) with an inverse mesa shape, a quartz thin-film having a reed portion 7 formed on the face of the base opposed to the face having the recessed portion, and excitation electrodes 8 and 9 which mechanically support the reed portion 7." Applicants respectfully submit that this interpretation is not correct.

First, Japan '721 does not teach excitation electrodes that are adapted to mechanically support the quartz thin-film and vibrate the vibrating reed portion. Contrary to the assertion by the Office, the vibrating portion 7 is not supported by the excitation electrodes 8 and 9. Instead, the vibrating portion 7 is supported by the connecting portion 10. Although the excitation electrodes 8 and 9 are not explained explicitly in the specification of Japan '721, it is presumed that the electrodes 8 and 9 are constructed by vacuum deposition of thin metal film. Such thin films, or course, cannot support the vibrating portion 7.

Second, Japan '721 does not teach a conductive base having a recessed portion provided on one face thereof by processing to have an inverse mesa shape, the base forming an excitation electrode. Japan '721 nowhere teaches or reasonably suggests that *the base is conductive and forms an excitation electrode*.

Third, Japan '721 does not teach a quartz thin-film formed on the other face of the base by epitaxial growth to have a thickness of 10 μm or less. Japan '721 nowhere teaches or reasonably suggests that the *thin-film has a thickness of 10 μm or less*.

Hence, Japan '721 does not teach or suggest the recited features of Claim 1, and therefore does not anticipate Claim 1. Accordingly, Claim 1 is allowable over Japan '721.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 1 under 35 U.S.C. § 102(b) as being anticipated by Japan '721.


Added Claims

2. Claims 2 and 3 variously depend from Claim 1 and are allowable as being dependent from an allowable claim.

3. For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance. If such is not the case, the Examiner is requested to kindly contact the undersigned in an effort to satisfactorily conclude the prosecution of this application.

Date: December 8, 2005

Respectfully submitted,

By 

Michael A. Sartori, Ph.D.

Registration No.: 41,289

Thomas C. Schoeffler

Registration No. 43,385

VENABLE LLP

P.O. Box 34385

Washington, DC 20043-9998

Telephone: (202) 344-4000

Telefax: (202) 344-8300

Attorney/Agent for Applicant

MAS/TCS